# Adding Vision to your Tests

## Why should you use Machine Vision?

Many measurements are difficult to automate with traditional instrumentation and error prone or very slow when relying on the eyes of an operator. This includes:

- Dimensional measurements
- Color measurement
- Fasteners count
- Presence/absence of components in assembly
- Processing large volume of images

The previous examples show some of the functionalities implemented by **Synovus Solutions** on ATE using Machine Vision. Since LabVIEW™ offers a complete library of functions specifically, it is easy to integrate within an existing ATE or adding the features in a new application.
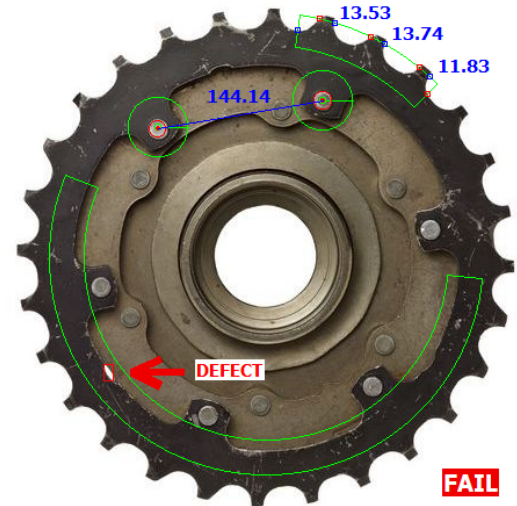


*Basic vision measurement on cogs*

## Example 1 - Saving $1M with thermal imaging
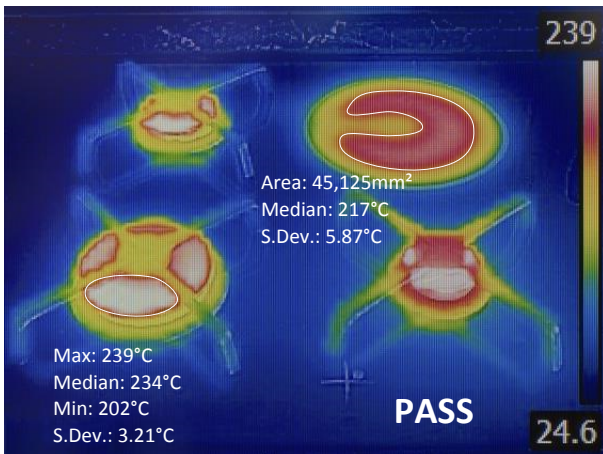


*Thermal analysis using infrared camera*

**Synovus Solutions** created a Vision based test system for a company manufacturing high power electronics products. The objective was to perform contactless temperature measurement of PCBs in production to validate proper assembly and contact with the heat sinks. The benefits of this approach were:

- Reduced electrical hazards from high voltage sections
- Monitor 10+ components from single image
- Support multiple board configurations

**Results & Benefits** - After months of normal operations, the measurements allowed the design engineers to quickly detect a subtle design issue that led a large batch of units to overheat. This automated infrared temperature measurement quickly caught a problem that would have led to early failures, an expensive recall and significant damage to the brand.

## Example 2 - Analyzing 600k images to find alignment problems

Using commercial **GoPro** cameras mounted on a vehicle going around a circuit, HD images were recorded at high speed. Using LabVIEW™ and its Machine Vision libraries, **Synovus Solutions** quickly produced an application to process the vast collection of images and provide measurements on the relative position of components. A dedicated computer completed the colossal analysis task overnight and provided detailed graph reports of the results.
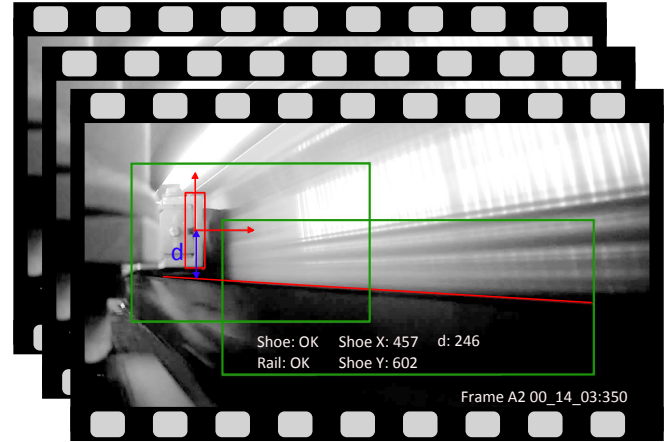
*Analysis of one frame from the camera*

**Results & Benefits** - The automated visual measurement approach was significantly faster and less expensive to implement than a traditional approach. The results allowed our client to identify some issues and to allocate its resources more efficiently in performing the required maintenance. Finally, from the same images, our client has the ability to quickly add new measurements at no extra costs.

## About Us

**Synovus Solutions** designs automated test and controls systems to support engineering, scientific and manufacturing activities. By controlling the processes with a computer, we can help you achieve:

- Shorter production test time
- Improved reporting capabilities
- Control of experiments lasting weeks or months
- Responsiveness required by highly dynamic systems
- Repeatability of subjective visual measurements

Contact us today to discuss your test application.